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10/821,612	04/09/2004	Kazunari Tonami	6453P042	1554

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EXAMINER	
NEWMAN, MICHAEL A	
ART UNIT	PAPER NUMBER
2624	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/821,612	TONAMI, KAZUNARI	
	Examiner	Art Unit	
	MICHAEL A. NEWMAN	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-8,10 and 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-8,10 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on December 22nd, 2008 has been entered.

2. In view of the amendment to the claims, the amendment of claims 4, 10 and 11 has been acknowledged. Claims 1 – 3 and 9 were previously cancelled.

Response to Arguments

3. Applicant's arguments with respect to claim 4 have been considered but are moot in view of the new ground(s) of rejection.

a. In pages 5 and 6 of the Remarks, regarding the 35 U.S.C. 103 rejection of claim 4 over Nishikawa (U.S. Patent No. 6,836,565), "Nishikawa"; Applicant's Representative submits that Nishikawa does not teach the newly added limitations requiring that the information extracted by the first and second extractors is “MTF characteristics of a scanner that has scanned an image corresponding to the image data, the MTF characteristics hav[ing] been added to the image data of the image file.” Nishikawa does not appear to explicitly teach embedding and extracting MTF information. However, newly found prior art has been applied, in combination with the teachings of Nishikawa, in the new rejection under 35 U.S.C. 103 set forth below.

Claim Objections

4. Claims 4, 10 and 11 are objected to because of the following informalities: Claims 4, 10 and 11 refer to the acronym, "MTF." Although the term MTF has been defined in the specification to mean 'modulation transfer function', such a definition should also be contained within the claims. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 4, 6 – 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa (U.S. Patent No. 6,863,565) in view of Honsinger et al. (U.S. Pg Pub No. 2004/0091131) and Parulski et al. (U.S. Patent No. 6,567,119). Hereinafter referred to as Nishikawa, Honsinger and Parulski, respectively.

a. Regarding claims 4 and 10, Nishikawa teaches an image processing apparatus comprising: a first information extractor to extract from a tag region of an image file, **(Nishikawa Fig. 11 – "Gamma Correction Value Tag")** information represented as a value related to image processing of image data of the image file according to a first extraction method **(Nishikawa Col. 7 lines 57 – 60)**; a second information extractor **(Nishikawa Fig. 2 – "Reduced Image Data")** to extract the information represented as the value located within the image data of the image file according to a second extraction method different from the first extraction method **(Nishikawa Col. 5 lines 63 – 67) [Note that the**

reduced image data is used to extract a gamma correction value], only when the information cannot be extracted by the first information extractor **(Nishikawa Col. 7 lines 57 – 63)**; and an image processing unit to perform the image processing based on the information extracted by one of the first information extractor and the second information extractor **(Nishikawa Fig. 2 or 11 element 24)**. However, Nishikawa **does not explicitly state** that the second extraction method takes a longer time than the first extraction method. Official Notice is taken that it is extremely well known in the art that simply reading a value from a file tag is faster than extracting or calculating the value by performing analysis on an image. Nishikawa actually teaches that obtaining a gamma correction value from the reduced image data will be faster than obtaining it by analyzing the entire image **(Nishikawa Col. 4 line 62 – Col. 5 line 3)**. Therefore, by teaching that extraction from the reduced image or the entire image should be done only if the gamma correction tag cannot be used **(Nishikawa Col. 7 lines 57 – 67)**, Nishikawa implicitly teaches that reading a tag is faster than analyzing either a reduced image or an entire image, as is known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was done to use a secondary information extraction method involving a longer processing delay than a primary method, such as Nishikawa's analysis of a reduced or entire image, only when the primary information extraction method, such as Nishikawa's reading of the gamma correction tag, cannot be used; and thus minimize the processing delay while still reliably extracting the necessary

information. Nishikawa is concerned with embedding gamma correction and color correction parameters using the aforementioned methods. However, Nishikawa **does not explicitly teach** that the information is MTF (modulation transfer function) characteristics of a scanner that has scanned an image corresponding to the image data, the MTF characteristics have been added to the image data of the image file. **Pertaining to the same field of endeavor, Honsinger teaches steganographically embedding, into the images, a payload of known MTFs characterizing scanners that could be used to scan and copy the images (Honsinger PP 0048 – 0053). Honsinger further teaches that by embedding such a payload, an estimate of the impact future scan-print cycles would have on the image could be formed and used for authentication purposes (Honsinger PP 0007). Honsinger; however, is interested in detecting the deterioration in order to authenticate the image data rather than to correct it, as in Nishikawa. Also pertaining to the same field of endeavor, Parulski teaches that digital image processing system in which an image is automatically sharpened by using the modulation transfer function from the camera to determine the optimum sharpening filter (Parulski Col. 7 line 66 – Col. 8 line 8). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to embed an image scanner's MTF characteristics as a stenographic payload, as taught by Honsinger and by using Nishikawa's dual embedding/extraction techniques, in order to use the MTF data to**

determine the necessary sharpening correction, as taught by Parulski, therefore obtaining a final printed image having improved sharpness in addition to the improved color and gamma characteristics originally enabled by Nishikawa.

b. Regarding claim 6, Nishikawa teaches the image processing apparatus according to claim 4, wherein the first information extractor is operable to extract the information from a tag that has been added to the image data **(Nishikawa Col. 7 lines 57 – 58)**, and the second information extractor is operable to extract the information from a specific pattern that has been added to the image data **(Nishikawa Col. 4 lines 1 – 10) [Note that reduced image can be an outline, thumbnail, etc which are pixel patterns specific to the image]**.

c. Regarding claims 7 and 8, Nishikawa teaches the image processing apparatus according to claim 4, further comprising a third information extractor to extract image characteristics from the image data when the information cannot be extracted by the first information extractor and the second information extractor **(Nishikawa Col. 7 lines 63 – 65) [Note that the entire image is analyzed]**, wherein the image processing unit is operable to perform the image processing based on the image characteristics extracted **(Nishikawa Fig. 2 or 11 element 24)**.

d. Regarding claim 11, Nishikawa teaches an image processing system comprising an image input apparatus **(Nishikawa Fig. 1 element 10)** and an image output apparatus **(Nishikawa Fig. 1 element 15)**, wherein the image input

apparatus includes: a first information addition unit to add **(Nishikawa Fig. 11 element 28)**, to image data, information related to image processing of the image data according to a first addition method as first information **(Nishikawa Col. 6 lines 27 – 36)**; and a second information addition unit **(Nishikawa Fig. 6 element 61)** to add the information to the image data according to a second addition method different from the first information addition method as second information **(Nishikawa Col. 4 lines 17 – 19 and lines 26 – 30 – See also Col. 7 lines 57 – 63) [Note that the same gamma correction value above is included]**, wherein at least one of the first and the second information added is not lost even when an image processing is performed with respect to the image data **(Nishikawa Col. 4 lines 55 – 61) [Note that the information can be obtained even if the format is changed]**. **[Note that although the first and second embodiments have been referred to, it is the third embodiment, which combines the two but does not repeat the specifications of each, that is most pertinent. See Col. 7 lines 58 – 67.]**, and the image output apparatus includes: a first information extractor to extract from a tag region of an image file, **(Nishikawa Fig. 11 – "Gamma Correction Value Tag")** information represented as a value related to image processing of image data of the image file according to a first extraction method **(Nishikawa Col. 7 lines 57 – 60)**; a second information extractor **(Nishikawa Fig. 2 – "Reduced Image Data")** to extract the information represented as the value located within the image data of the image file according to a second extraction method different from the first

extraction method **(Nishikawa Col. 5 lines 63 – 67) [Note that the reduced image data is used to extract a gamma correction value]**, only when the information cannot be extracted by the first information extractor **(Nishikawa Col. 7 lines 57 – 63)**; and an image processing unit to perform the image processing based on the information extracted by one of the first information extractor and the second information extractor **(Nishikawa Fig. 2 or 11 element 24)**. However, Nishikawa **does not explicitly state** that the second extraction method takes a longer time than the first extraction method. Official Notice is taken that it is extremely well known in the art that simply reading a value from a file tag is faster than extracting or calculating the value by performing analysis on an image. Nishikawa actually teaches that obtaining a gamma correction value from the reduced image data will be faster than obtaining it by analyzing the entire image **(Nishikawa Col. 4 line 62 – Col. 5 line 3)**. Therefore, by teaching that extraction from the reduced image or the entire image should be done only if the gamma correction tag cannot be used **(Nishikawa Col. 7 lines 57 – 67)**, Nishikawa implicitly teaches that reading a tag is faster than analyzing either a reduced image or an entire image, as is known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was done to use a secondary information extraction method involving a longer processing delay than a primary method, such as Nishikawa's analysis of a reduced or entire image, only when the primary information extraction method, such as Nishikawa's reading of the gamma correction tag, cannot be used; and

thus minimize the processing delay while still reliably extracting the necessary information. Nishikawa is concerned with embedding gamma correction and color correction parameters using the aforementioned methods. However, Nishikawa **does not explicitly teach** that the information is MTF (modulation transfer function) characteristics of a scanner that has scanned an image corresponding to the image data, the MTF characteristics have been added to the image data of the image file. **Pertaining to the same field of endeavor, Honsinger teaches steganographically embedding, into the images, a payload of known MTFs characterizing scanners that could be used to scan and copy the images (Honsinger PP 0048 – 0053). Honsinger further teaches that by embedding such a payload, an estimate of the impact future scan-print cycles would have on the image could be formed and used for authentication purposes (Honsinger PP 0007). Honsinger; however, is interested in detecting the deterioration in order to authenticate the image data rather than to correct it, as in Nishikawa. Also pertaining to the same field of endeavor, Parulski teaches that digital image processing system in which an image is automatically sharpened by using the modulation transfer function from the camera to determine the optimum sharpening filter (Parulski Col. 7 line 66 – Col. 8 line 8). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to embed an image scanner's MTF characteristics as a stenographic payload, as taught by Honsinger and by using Nishikawa's**

dual embedding/extraction techniques, in order to use the MTF data to determine the necessary sharpening correction, as taught by Parulski, therefore obtaining a final printed image having improved sharpness in addition to the improved color and gamma characteristics originally enabled by Nishikawa.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa (U.S. Patent No. 6,863,565) in view of Honsinger et al. (U.S. Pg Pub No. 2004/0091131) and Parulski et al. (U.S. Patent No. 6,567,119) as applied to claims 4 above, and further in view of Rhoads (U.S. Pg Pub 2003/0048922) and Anglin (U.S. Pg Pub 2003/0032033). Hereinafter referred to as Nishikawa, Honsinger, Parulski, Rhoads and Anglin respectively.

a. Regarding claim 5, Nishikawa in view of Honsinger and Parulski teaches all the limitations of the independent claim 4, as set forth in the 103 rejection of claim 4 above. Nishikawa also teaches that the first information addition and extraction units add and extract the information to the image data as a tag **(Nishikawa Col. 6 lines 46 – 51)**. However, although Nishikawa also suggests adding the correction parameters to the inside of the image to be corrected **(Nishikawa Col. 8 lines 32 – 34)**, **Nishikawa fails to teach** that the second information addition/extraction unit embeds/extracts the information in the image data as/from an electronic watermark. **Pertaining to the same field of endeavor, Rhoads teaches encoding data relating to exposure information**

in an image using watermarks (Rhoads – abstract lines 1 and 2). More importantly, Rhoads teaches the concept of "header verification", in which data contained in the header is repeated in a watermarked pattern embedded within the image (Rhoads PP 0322). Anglin, which incorporates Rhoads by reference, teaches that by including redundant representation of information in both header and content watermark, corrupted or lost header data can be retrieved from the watermark (Anglin PP 0140 - 0141). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to embed Nishikawa's gamma correction value (or the reduced image data used to derive it), currently stored only in the image header, in the image itself as a watermark. By using a robust watermark, the correction information can be successfully retrieved even when abusers or other processing alter the information content of the less robust header (Rhoads PP 00322).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Carmeli (U.S. Patent No. 5,699,440) teaches an MTF determination system.

b. Fantone et al. (U.S. Patent No. 5,661,816) teaches a system for measuring the MTF of optical components.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL A. NEWMAN whose telephone number is (571) 270-3016. The examiner can normally be reached on Mon - Thurs from 9:30am to 6:30pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew C. Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C Bella/
Supervisory Patent Examiner, Art Unit 2624

M.A.N.